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Logon

*** It is now 7/3/08 5:39:45 PM ***
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<div align="center">

Welcome to DialogLink - Version 5
Revolutionize the Way You Work!

</div>

New on Dialog
Order Patent and Trademark File Histories Through Dialog

Thomson File Histories are now available directly through *Dialog*. Combined with the comprehensive patent and trademark information on *Dialog*, file histories give you the most complete view of a patent or trademark and its history in one place. When searching in the following patent and trademark databases, a link to an online order form is displayed in your search results, saving you time in obtaining the file histories you need.

Thomson File Histories are available from the following *Dialog* databases:

• CLAIMS/Current Patent Legal Status (File 123)

• CLAIMS/U.S. Patents (File 340)

• Chinese Patent Abstracts in English (File 344)

• Derwent Patents Citation Index (File 342)

• Derwent World Patents Index (for users in Japan) (File 352)

• Derwent World Patents Index First View (File 331)

• Derwent World Patents Index (File 351)

• Derwent World Patents Index (File 350)

• Ei EnCompassPat (File 353)

• European Patents Fulltext (File 348)

• French Patents (File 371)

• German Patents Fulltext (File 324)

• IMS Patent Focus (File 447, 947)

• INPADOC/Family and Legal Status (File 345)

• JAPIO - Patent Abstracts of Japan (File 347)

• LitAlert (File 670)

• U.S. Patents Fulltext (1971-1975) (File 652)

- U.S. Patents Fulltext (1976-present) (File 654)

- WIPO/PCT Patents Fulltext (File 349)

- TRADEMARKSCAN - U.S. Federal (File 226)

DialogLink 5 Release Notes
New features available in the latest release of DialogLink 5 (August 2006)

- Ability to resize images for easier incorporation into DialogLink Reports

- New settings allow users to be prompted to save Dialog search sessions in the format of their choice (Microsoft Word, RTF, PDF, HTML, or TEXT)

- Ability to set up Dialog Alerts by Chemical Structures and the addition of Index Chemicus as a structure searchable database

- Support for connections to STN Germany and STN Japan services

Show Preferences for details


```
? Help Off Line

* * *

Connecting to Rob Pond - Dialog - 264751

Connected to Dialog via SMS003012906


?  B 15, 9, 610, 810, 275, 476, 624, 621, 636, 613, 813, 16, 160, 634, 148, 20, 35, 583,
65, 2, 474, 475, 99, 256, 348, 349, 347, 635, 570, PAPERSMJ, PAPERSEU, 47

>>>W:        476 does not exist

1 of the specified files is not available
```

[File 15] ABI/Inform(R) 1971-2008/Jul 02
(c) 2008 ProQuest Info&Learning. All rights reserved.

[File 9] Business & Industry(R) Jul/1994-2008/Jul 02
(c) 2008 The Gale Group. All rights reserved.
File 9: UD names have been reset to reflect currency. All data is present.

[File 610] Business Wire 1999-2008/Jul 03
(c) 2008 Business Wire. All rights reserved.
File 610: File 610 now contains data from 3/99 forward. Archive data (1986-2/99) is available in File 810.

[File 810] Business Wire 1986-1999/Feb 28
(c) 1999 Business Wire . All rights reserved.

[File 275] Gale Group Computer DB(TM) 1983-2008/Jun 25

[File 624] McGraw-Hill Publications 1985-2008/Jul 03
File 624: Homeland Security & Defense and 9 Platt energy journals added Please see HELP NEWS624 for more

[File 621] Gale Group New Prod.Annou.(R) 1985-2008/Jun 16

[File 636] Gale Group Newsletter DB(TM) 1987-2008/Jun 26

[File 613] PR Newswire 1999-2008/Jul 03
File 613: File 613 now contains data from 5/99 forward. Archive data (1987-4/99) is available in File 813.

[File 813] PR Newswire 1987-1999/Apr 30

[File 16] Gale Group PROMT(R) 1990-2008/Jun 26
File 16: Because of updating irregularities, the banner and the update (UD=) may vary.

[File 160] Gale Group PROMT(R) 1972-1989

[File 634] San Jose Mercury Jun 1985-2008/Jun 29

[File 148] Gale Group Trade & Industry DB 1976-2008/Jun 06
File 148: The CURRENT feature is not working in File 148. See HELP NEWS148.

[File 20] Dialog Global Reporter 1997-2008/Jul 03

[File 35] Dissertation Abs Online 1861-2008/Nov

[File 583] Gale Group Globalbase(TM) 1986-2002/Dec 13
File 583: This file is no longer updating as of 12-13-2002.

[File 65] Inside Conferences 1993-2008/Jul 02

[File 2] INSPEC 1898-2008/Jun W1

[File 474] New York Times Abs 1969-2008/Jul 03

[File 475] Wall Street Journal Abs 1973-2008/Jul 02

[File 99] Wilson Appl. Sci & Tech Abs 1983-2008/Apr

[File 256] TecInfoSource 82-2008/Aug

[File 348] EUROPEAN PATENTS 1978-2007/ 200826

[File 349] PCT FULLTEXT 1979-2008/UB=20080626lUT=20080619

[File 347] JAPIO Dec 1976-2007/Dec(Updated 080328)

[File 635] Business Dateline(R) 1985-2008/Jul 03

[File 570] Gale Group MARS(R) 1984-2008/Jun 26

[File 387] The Denver Post 1994-2008/Jul 01

[File 471] New York Times Fulltext 1980-2008/Jul 05
*File 471: *File 471:UD names are being reset to reflect currency. All data is present and up to date.*

[File 492] Arizona Repub/Phoenix Gaz 19862002/Jan 06
File 492: File 492 is closed (no longer updating). Use Newsroom, Files 989 and 990, for current records.

[File 494] St LouisPost-Dispatch 1988-2008/Jul 02

[File 631] Boston Globe 1980-2008/Jun 29

[File 633] Phil.Inquirer 1983-2008/Jul 03

[File 638] Newsday/New York Newsday 1987-2008/Jul 03

[File 640] San Francisco Chronicle 1988-2008/Jul 02

[File 641] Rocky Mountain News Jun 1989-2008/Jul 03

[File 702] Miami Herald 1983-2008/Jun 26

[File 703] USA Today 1989-2008/Jul 02

[File 704] (Portland)The Oregonian 1989-2008/Jun 29

[File 713] Atlanta J/Const. 1989-2008/Jun 29

[File 714] (Baltimore) The Sun 1990-2008/Jul 02

[File 715] Christian Sci.Mon. 1989-2008/Jun 30

[File 725] (Cleveland)Plain Dealer Aug 1991-2008/Jul 01

[File 735] St. Petersburg Times 1989- 2008/Jul 02

[File 477] Irish Times 1999-2008/Jul 03

[File 710] Times/Sun.Times(London) Jun 1988-2008/Jun 30

[File 711] Independent(London) Sep 1988-2006/Dec 12
File 711: Use File 757 for full current day's news of the Independent, as as well as full coverage of many additional European news sources.

[File 756] Daily/Sunday Telegraph 2000-2008/Jul 02

[File 757] Mirror Publications/Independent Newspapers 2000-2008/Jun 30

[File 47] Gale Group Magazine DB(TM) 1959-2008/Jun 23

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?   S PD<20000112

Processing

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>>>W: One or more prefixes are unsupported

  or undefined in one or more files.

S1   69787003   S PD<20000112

? s (creat??? or publish???)(5n)(webpage or web-page or webpages or web-pages or website or websites or web-site or web-sites or (web(w)(site or sites or page or pages)))

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       20797981   CREAT???

       14357531   PUBLISH???

          21711   WEBPAGE

```
         8   WEB-PAGE
      5072   WEBPAGES
         9   WEB-PAGES
   5382280   WEBSITE
    608942   WEBSITES
        13   WEB-SITE
        18   WEB-SITES
  16945672   WEB
  17690676   SITE
   5310151   SITES
   6135508   PAGE
   2363371   PAGES
  11830658   WEB(W)(((SITE OR SITES) OR PAGE) OR PAGES)
S2    406098   S (CREAT??? OR PUBLISH???)(5N)(WEBPAGE OR WEB-PAGE OR WEBPAGES OR WEB-
PAGES OR WEBSITE OR WEBSITES OR WEB-SITE OR WEB-SITES OR (WEB(W)(SITE OR SITES OR PAGE OR
PAGES)))


?  s s1 and s2

Processing

Processing

Processing

  69787003   S1
    406098   S2
S3    95743   S S1 AND S2


?  s s3 and (template or templates)

     95743   S3
    273510   TEMPLATE
    222718   TEMPLATES
S4     7288   S S3 AND (TEMPLATE OR TEMPLATES)


?  s s4 and (object or objects)

      7288   S4
   2415169   OBJECT
   1483008   OBJECTS
```

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S5        1815    S S4 AND (OBJECT OR OBJECTS)


?  s s5 and (container or containers)

         1815    S5

      1040116    CONTAINER

       932022    CONTAINERS
S6         130    S S5 AND (CONTAINER OR CONTAINERS)


?  s s6 and (dynamic or dynamically)

         130    S6

      2551419    DYNAMIC

       334740    DYNAMICALLY
S7          85    S S6 AND (DYNAMIC OR DYNAMICALLY)


?  rd
>>>W:  Duplicate detection is not supported for File 348.

Duplicate detection is not supported for File 349.

Duplicate detection is not supported for File 347.

Records from unsupported files will be retained in the RD set.

S8          65    RD  (UNIQUE ITEMS)


?  t s8/free/all
>>>W:  "FREE" is not a valid format name in file(s): 347-349
```

8/8/1 (Item 1 from file: 15)
ABI/Inform(R)

01970553   48029645
           USE FORMAT 7 OR 9 FOR FULL TEXT
Visualization of metadata
  Word Count: 5741 Length: 8 Pages
Dec 1999
Geographic Names: United States; US

Descriptors: Libraries; Information systems; Online data bases; User interface; Studies
Classification Codes: 9190 (CN=United States); 5240 (CN=Software & systems); 9130
(CN=Experimental/Theoretical)
Print Media ID: 17511

8/8/2 (Item 2 from file: 15)
ABI/Inform(R)
01970551   48029643
                USE FORMAT 7 OR 9 FOR FULL TEXT
Getting out of the HTML business: The database-driven Web site solution
  Word Count: 4912 Length: 6 Pages
Dec 1999
Geographic Names: United States; US

Descriptors: Extensible Markup Language; Libraries; Web sites; Studies; Online data bases
Classification Codes: 9190 (CN=United States); 5240 (CN=Software & systems); 9130 (CN=Experimental/Theoretical)
Print Media ID: 17511

8/8/3 (Item 3 from file: 15)
ABI/Inform(R)
01960304   46777889
                USE FORMAT 7 OR 9 FOR FULL TEXT
WebWare Lite lightens your Web-site load
  Word Count: 661 Length: 2 Pages
Nov 29, 1999
Company Names:
Today.com Inc Ticker: TODY 511210
Geographic Names: United States; US

Descriptors: Web site design; Software reviews; Systems management
Classification Codes: 5240 (CN=Software & systems); 9120 (CN=Product specific); 9190 (CN=United States)
Print Media ID: 17765
Trade Names: Today.com WebWare Lite

8/8/4 (Item 4 from file: 15)
ABI/Inform(R)
01817943   04-68934
                USE FORMAT 7 OR 9 FOR FULL TEXT
Drumbeat offers improved Web-site development tool
  Word Count: 821 Length: 2 Pages
May 3, 1999
Company Names:
Elemental Software Inc
Geographic Names: US

Descriptors: Software reviews; Software upgrading; Web site design
Classification Codes: 9190 (CN=United States); 9120 (CN=Product specific); 5240 (CN=Software & systems)

8/8/5 (Item 5 from file: 15)
ABI/Inform(R)
01729815   03-80805
          USE FORMAT 7 OR 9 FOR FULL TEXT
Pictorius: Team tool
  Word Count: 789 Length: 2 Pages
Oct 12, 1998
Company Names:
Pictorius Inc
Geographic Names: US

Descriptors: Software reviews; Software upgrading; Web sites; Object oriented programming
Classification Codes: 9190 (CN=United States); 5240 (CN=Software & systems); 9120 (CN=Product specific)

8/8/6 (Item 6 from file: 15)
ABI/Inform(R)
01660677   03-11667
          USE FORMAT 7 OR 9 FOR FULL TEXT
Application adventure
  Word Count: 3144 Length: 5 Pages
Jun 29, 1998
Geographic Names: US

Descriptors: Intranets; Systems development; Systems portability; Java
Classification Codes: 5240 (CN=Software & systems); 5250 (CN=Telecommunications systems); 9190
(CN=United States)

8/8/7 (Item 7 from file: 15)
ABI/Inform(R)
01350256   00-01243
          USE FORMAT 7 OR 9 FOR FULL TEXT
Year in review part two: March 1996-June 1996
  Word Count: 17016 Length: 11 Pages
Nov 25, 1996
Company Names:
Microsoft Corp (Duns: 08-146-6849 Ticker: MSFT)
Apple Computer Inc (Duns: 06-070-4780 Ticker: AAPL)
IBM Corp (Duns: 00-136-8083 Ticker: IBM)

Lotus Development Corp (Duns: 01-185-0484 Ticker: LOTS)
Netscape Communications Corp
Geographic Names: US

Descriptors: Computer industry; Software industry; Value added resellers; Year in review ; Manycompanies
Classification Codes: 9190 (CN=United States); 8302 (CN=Software and computer services); 8651 (CN=Computer industry)

8/8/8 (Item 1 from file: 610)
Business Wire
00088025   19990810222B0252 (USE FORMAT 7 FOR FULLTEXT)
TGS Announces 3Space ClipArtist 2.01 ZAP Edition; Turn Standard Clip Art Images into Works of Art in
Seconds And Publish 3D Images on Websites Instantly!

Tuesday , August 10, 1999   12:16 EDT
Word Count: 1,094
Company Names: silicon graphics inc; intel; microsoft; EMAIL LTD; TGS INC
Product Names: COMPUTER GRAPHICS; COMPUTER SOFTWARE; INTERNET; MEDIA INDUSTRIES;
MULTIMEDIA SOFTWARE; NETWORKS; PUBLISHING; TECHNOLOGY DEVELOPMENT; COMPUTERS;
COMMUNICATIONS TECHNOLOGIES; MULTIMEDIA; DATA COMMUNICATIONS
Event Names: TECHNOLOGY DEVELOPMENT

8/8/9 (Item 1 from file: 275)
Gale Group Computer DB(TM)
02370020   Supplier Number: 59199396 (Use Format 7 Or 9 For FULL TEXT)
SOHOnet Takes a Tactical Approach To Content Management.(RunTime Web site management
software)(Product Information)

Dec , 1999
Word Count: 4322   Line Count: 00343
Company Names: Sohonet--Products
Geographic Codes/Names: 1USA United States
Descriptors: Product description/specification
Event Codes/Names: 330 Product information
Product/Industry Names: 7372682 (Internet Server Software)
NAICS Codes: 51121 Software Publishers
Trade Names: RunTime (Web site management software)--Usage
File Segment: CD File 275

8/8/10 (Item 2 from file: 275)
Gale Group Computer DB(TM)

02358113   Supplier Number: 57823333 (Use Format 7 Or 9 For FULL TEXT)
WebWare Lite lightens your Web-site load: Program updates high- performance Web sites with ease.(Software Review)(Evaluation)

Nov 29 , 1999
Word Count: 831   Line Count: 00070
Company Names: Today.com Inc.--Products
Geographic Codes/Names: 1USA United States
Descriptors: Web site management software; Software single product review
Event Codes/Names: 350 Product standards, safety, & recalls
Product/Industry Names: 7372682 (Internet Server Software)
NAICS Codes: 51121 Software Publishers
Trade Names: WebWare Lite (Web site management software)--Evaluation
File Segment: CD File 275

8/8/11 (Item 3 from file: 275)
Gale Group Computer DB(TM)
02283985   Supplier Number: 54289677 (Use Format 7 Or 9 For FULL TEXT)
Quark counters-plans to market news-oriented Web publishing system NewsFlash will be supplied by Adhesive Software, a Texas startup with an innovative system already in the field.(Company Operations)

Feb , 1999
Word Count: 1977   Line Count: 00160
Company Names: Adhesive Software--Products; Quark Inc.--Planning
Geographic Codes/Names: 1U7TX Texas
Descriptors: Company business management; Electronic publishing; Web authoring software; Company restructuring/company reorganization
Event Codes/Names: 220 Strategy & planning
Product/Industry Names: 7372441 (DTP Software); 7372682 (Internet Server Software)
SIC Codes: 7372 Prepackaged software
NAICS Codes: 51121 Software Publishers
File Segment: CD File 275

8/8/12 (Item 4 from file: 275)
Gale Group Computer DB(TM)
02283942   Supplier Number: 54285219 (Use Format 7 Or 9 For FULL TEXT)
NCompass Resolution: Content Management and Workflow for Mid-range Sites.(Software Review)(Evaluation)

March , 1999
Word Count: 3796   Line Count: 00301
Company Names: NCompass Labs Inc.--Products
Geographic Codes/Names: 1USA United States

Descriptors: Web authoring software; Software single product review
Event Codes/Names: 350 Product standards, safety, & recalls
Product/Industry Names: 7372682 (Internet Server Software)
SIC Codes: 7372 Prepackaged software
NAICS Codes: 51121 Software Publishers
Trade Names: NCompass Labs Resolution 2.0 (Web authoring software)--Evaluation
File Segment: CD File 275

8/8/13 (Item 5 from file: 275)
Gale Group Computer DB(TM)
02179948   Supplier Number: 20526638 (Use Format 7 Or 9 For FULL TEXT)
Highlights from the exhibition. (Seybold Web Publisher conference) (Industry Trend or Event)

April , 1998
Word Count: 6649   Line Count: 00523

Special Features: other; illustration
Descriptors: Trade Show Report; Web Site/Web Page Development; Electronic Commerce; Web Authoring
Software; Graphics/Imaging Utility; Application Development Software; Draw Software; Desktop Video Software;
Color Processing Software
File Segment: CD File 275

8/8/14 (Item 6 from file: 275)
Gale Group Computer DB(TM)
02135336   Supplier Number: 19988385 (Use Format 7 Or 9 For FULL TEXT)
Shaping the future: PDF, XML and the men of the hour, Gates and Jobs. (includes related articles on Intenret
publishing reviews, and Brother's StampCreator) (Seybold San Francisco '97) (Industry Trend or Event)

Nov 17 , 1997
Word Count: 31490   Line Count: 02437

Special Features: photograph; table; illustration
Descriptors: Trade Show Report; Seybold Computer Publishing Conference and Exposition; Printing Industry;
Publishing Industry; Computer Industry
Product/Industry Names: 3573000 (Computers & Peripherals); 2700000 (Printing & Publishing)
SIC Codes: 3571 Electronic computers; 2700 PRINTING AND PUBLISHING
File Segment:

CD File 275

8/8/15 (Item 7 from file: 275)

Gale Group Computer DB(TM)
02086985   Supplier Number: 19576792 (Use Format 7 Or 9 For FULL TEXT)
Visualizing a new world. (Microsoft's Visual Studio 97 application development software) (Software Review)(Evaluation)

July , 1997
Word Count: 3109   Line Count: 00245

Special Features: other; illustration
Company Names: Microsoft Corp.--Products
Descriptors: Application Development Software; Software Single Product Review
Product/Industry Names: 7372513 (Application Development Software)
SIC Codes: 7372 Prepackaged software
Ticker Symbols: MSFT
Trade Names: Microsoft Visual Studio 97 (Application development software)--Evaluation
File Segment: CD File 275

8/8/16 (Item 8 from file: 275)
Gale Group Computer DB(TM)
02057182   Supplier Number: 19272194 (Use Format 7 Or 9 For FULL TEXT)
Introducing Visual Studio 97: a well-stocked toolbox for building distributed apps. (Microsoft's application development software) (includes related articles on creating distributed applications by using components) (Product Information)

May , 1997
Word Count: 8448   Line Count: 00677

Special Features: illustration; table; program
Company Names: Microsoft Corp.--Products
Descriptors: Product Description/Specification; Product Application; Application Development Software
SIC Codes: 7372 Prepackaged software
Ticker Symbols: MSFT
Trade Names: Microsoft Visual Studio 97 (Application development software)--Design and construction
File Segment: CD File 275

8/8/17 (Item 9 from file: 275)
Gale Group Computer DB(TM)
02056347   Supplier Number: 19207221 (Use Format 7 Or 9 For FULL TEXT)
Exploring Access 97. (Microsoft's DBMS) (Object.Client) (Software Review)(Evaluation)(Column)

March , 1997
Word Count: 3875   Line Count: 00331

Special Features: illustration; program
Company Names: Microsoft Corp.--Products
Descriptors: Software Single Product Review; DBMS
SIC Codes: 7372 Prepackaged software
Ticker Symbols: MSFT
Trade Names: Microsoft Access 97 (DBMS)--Evaluation; Microsoft Office 97 (Integrated software)--Evaluation
File Segment: CD File 275

8/8/18 (Item 10 from file: 275)
Gale Group Computer DB(TM)
(c) 2008 The Gale Group. All rights reserved.
02051688   Supplier Number: 19194292 (Use Format 7 Or 9 For FULL TEXT)
Behind the scenes at MSN 2.0: architecting an Internet-based online service. (Microsoft Network online service) (Internet/Web/Online Service Information)

April , 1997
Word Count: 10482   Line Count: 00844

Special Features: illustration; table; chart; program
Company Names: Microsoft Corp.--Services
Descriptors: Internet/Web Technology; Online Information Service
SIC Codes: 7375 Information retrieval services
Ticker Symbols: MSFT
Trade Names: Microsoft Network (Online information service)--Design and construction
File Segment: CD File 275

8/8/19 (Item 11 from file: 275)
Gale Group Computer DB(TM)
(c) 2008 The Gale Group. All rights reserved.
02002874   Supplier Number: 18855032 (Use Format 7 Or 9 For FULL TEXT)
Building and managing sites. (Web sites) (Technology Information)

Oct , 1996
Word Count: 5108   Line Count: 00398
Descriptors: Technology Development; Technology Application; Web Authoring Software; Web Site/Web Page Development
SIC Codes: 7372 Prepackaged software
File Segment: CD File 275

8/8/20 (Item 12 from file: 275)
Gale Group Computer DB(TM)
(c) 2008 The Gale Group. All rights reserved.
02002146   Supplier Number: 18849725 (Use Format 7 Or 9 For FULL TEXT)

Marimba Castanet and Bongo. (Marimba makes Castanet, a platform for delivering software and content, and Bongo, a Java tool) (Product Information)

Nov , 1996
Word Count: 3715   Line Count: 00302
Company Names: Marimba Inc.--Products
Descriptors: Product Description/Specification; Internet/Web Server Software; Programming Utility
SIC Codes: 7372 Prepackaged software
Trade Names: Castanet (Internet/Web server software)--Usage; Bongo (Programming utility) --Usage
File Segment: CD File 275

8/8/21 (Item 13 from file: 275)
Gale Group Computer DB(TM)
(c) 2008 The Gale Group. All rights reserved.
01966105   Supplier Number: 18537277
Visual C++ 4.2 dramatically reduces the learning curve for writing Internet apps. (Product Information)

Sep , 1996
Word Count: 4873   Line Count: 00382

Special Features: illustration; table; program
Company Names: Microsoft Corp.--Products
Descriptors: Product Application; Application Development Software
SIC Codes: 7372 Prepackaged software
Ticker Symbols: MSFT
Trade Names: Microsoft Visual C++ 4.2 (Application development software)--Usage
File Segment: CD File 275

8/8/22 (Item 14 from file: 275)
Gale Group Computer DB(TM)
(c) 2008 The Gale Group. All rights reserved.
01965435   Supplier Number: 18548007
Nexpo '96, II: editorial and advertising systems and electronic publishing. (includes related article on Freedom System Integrators' addition of Phrasea to its product line) (Industry Trend or Event)

July 29 , 1996
Word Count: 41501   Line Count: 03239

Special Features: illustration; other
Descriptors: Trade Show Report; Electronic Publishing; Publishing Industry
File Segment: CD File 275

8/8/23 (Item 15 from file: 275)
Gale Group Computer DB(TM)

01960380   Supplier Number: 18508732 (Use Format 7 Or 9 For FULL TEXT)
For powerful Internet development tools, check out Visual C++ 4.1. (Software Review)(Evaluation)

August , 1996
Word Count: 2061   Line Count: 00176

Special Features: illustration; other
Company Names: Microsoft Corp.--Products
Descriptors: Application Development Software; Software Single Product Review
SIC Codes: 7372 Prepackaged software
Ticker Symbols: MSFT
Trade Names: Microsoft Visual C++ 4.1 (Application development software)--Evaluation
File Segment: CD File 275

8/8/24 (Item 16 from file: 275)
Gale Group Computer DB(TM)
01948502   Supplier Number: 18373685 (Use Format 7 Or 9 For FULL TEXT)
Amazing free stuff. (1,001 best Internet downloads) (includes related article on Best of the Internet awards)(Directory)

July , 1996
Word Count: 17331   Line Count: 01448
Descriptors: Internet/Web Site Directory; Shareware; Public Utilities Software
File Segment: CD File 275

8/8/25 (Item 17 from file: 275)
Gale Group Computer DB(TM)
01812098   Supplier Number: 17223344 (Use Format 7 Or 9 For FULL TEXT)
Nexpo '95 preview: eyes on the Net. (vendors and their products)

June 12 , 1995
Word Count: 13083   Line Count: 01131

Special Features: illustration; photograph; table
Descriptors: Industry Event; Trade Show Report; Publishing Industry; Internet
File Segment: CD File 275

8/8/26 (Item 1 from file: 621)
Gale Group New Prod.Annou.(R)
01356989   Supplier Number: 46219573 (USE FORMAT 7 FOR FULLTEXT)

ACTIVEX CONTROLS GAIN SUPPORT FROM 71 SOFTWARE VENDORS

March 12 , 1996
Word Count: 1188
Publisher Name: PR Newswire Association, Inc.
Company Names: *Microsoft Corp.
Event Names: *380 (Strategic alliances)
Geographic Names: *1USA (United States)
Product Names: *7372510 (Software Development Tools)
Industry Names: BUS (Business, General); BUSN (Any type of business)
NAICS Codes: 51121 (Software Publishers)
Ticker Symbols: MSFT

8/8/27 (Item 1 from file: 16)
Gale Group PROMT(R)
(c) 2008 The Gale Group. All rights reserved.
09204382   Supplier Number: 78402299 (USE FORMAT 7 FOR FULLTEXT)

ANTEC '99 WRAPUP.
July , 1999
Word Count: 22054
Publisher Name: Society of Plastics Engineers, Inc.
Industry Names: BUSN (Any type of business); CHEM (Chemicals, Plastics and Rubber)

8/8/28 (Item 2 from file: 16)
Gale Group PROMT(R)
(c) 2008 The Gale Group. All rights reserved.
06309800   Supplier Number: 54530579 (USE FORMAT 7 FOR FULLTEXT)

Drumbeat Offers Improved Web-Site Development Tool -- Upgrade Improves User Interface And Data
Access.(Evaluation)
May 3 , 1999
Word Count: 807
Publisher Name: CMP Publications, Inc.
Company Names: *Elemental Software
Event Names: *350 (Product standards, safety, & recalls)
Geographic Names: *1USA (United States)
Product Names: *7372682 (Internet Server Software); 7372510 (Software Development Tools)
Industry Names: BUSN (Any type of business); CMPT (Computers and Office Automation); TELC
(Telecommunications)
NAICS Codes: 51121 (Software Publishers)
Trade Names: Drumbeat 2000 (Internet/Web database software)
Special Features: COMPANY

8/8/29 (Item 3 from file: 16)
Gale Group PROMT(R)
05684597   Supplier Number: 53110817 (USE FORMAT 7 FOR FULLTEXT)

The 1998 Products of the Year.(Buyers Guide)
April 1 , 1998
Word Count: 11823
Publisher Name: Miller Freeman, Inc.
Event Names: *330 (Product information)
Geographic Names: *1USA (United States)
Product Names: *3573105 (Peripheral Servers (Computers)); 3661251 (Communications Servers); 3661254 (Bridges/Routers/Gateways); 7372000 (Computer Software)
Industry Names: BUSN (Any type of business); CMPT (Computers and Office Automation)
NAICS Codes: 334111 (Electronic Computer Manufacturing); 33421 (Telephone Apparatus Manufacturing); 51121 (Software Publishers)
Special Features: LOB

8/8/30 (Item 4 from file: 16)
Gale Group PROMT(R)
05235172   Supplier Number: 47982524 (USE FORMAT 7 FOR FULLTEXT)

DBMS Tools for Web Intergration: Pour It On!
Sept 15 , 1997
Word Count: 4395
Publisher Name: CMP Publications, Inc.
Company Names: *Bluestone Software Inc.; Borland International Inc.; EveryWare Development Corp.; International Business Machines Corp.; Microsoft Corp.; Oracle Corp. ; Sybase Inc.

Event Names: *336 (Product introduction)
Geographic Names: *1USA (United States)
Product Names: *7372510 (Software Development Tools)
Industry Names: BUSN (Any type of business); CMPT (Computers and Office Automation)
NAICS Codes: 51121 (Software Publishers)
Ticker Symbols: BORL; IBM; MSFT; ORCL; SYBS
Special Features: COMPANY

8/8/31 (Item 5 from file: 16)
Gale Group PROMT(R)
05178116   Supplier Number: 47902383 (USE FORMAT 7 FOR FULLTEXT)

Authorware adds intranets to its delivery options
August 11 , 1997
Word Count: 1001
Publisher Name: InfoWorld Publishing Company
Company Names: *Macromedia Inc. (San Francisco, California)
Event Names: *350 (Product standards, safety, & recalls)
Geographic Names: *1USA (United States)
Product Names: *7372453 (Multimedia Authoring Software)
Industry Names: BUSN (Any type of business); CMPT (Computers and Office Automation)
NAICS Codes: 51121 (Software Publishers)
Ticker Symbols: MACR
Special Features: COMPANY

8/8/32 (Item 1 from file: 148)
Gale Group Trade & Industry DB
12103529   Supplier Number: 59021365 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Getting Out of the HTML Business: The Database-Driven Web Site Solution.(library resource networks)

Dec , 1999
Word Count: 5269   Line Count: 00426
Industry Codes/Names: BUSN Any type of business; LIB Library and Information Science
Descriptors: Libraries--Communication systems; Database design--Analysis; Database management systems--
Design and construction; Information storage and retrieval systems--Design and construction; Library information
networks-- Design and construction
Geographic Codes: 1USA United States
File Segment: TI File 148

8/8/33 (Item 2 from file: 148)
Gale Group Trade & Industry DB
10534751   Supplier Number: 21215856 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Pictorius: team tool.(Pictorius' iNet Developer 4.0) (Software Review)(Evaluation)

Oct 12 , 1998
Word Count: 999   Line Count: 00087
Company Names: Pictorius Inc.--Products
Industry Codes/Names: BUSN Any type of business; CMPT Computers and Office Automation
Descriptors: Internet--Computer programs
Product/Industry Names: 7372682 (Internet Server Software)
Product/Industry Names: 7372 Prepackaged software
Trade Names: Pictorius iNet Developer 4.0 (Internet/Web server software)--Evaluation
File Segment: CD File 275

8/8/34 (Item 3 from file: 148)
Gale Group Trade & Industry DB
09300847   Supplier Number: 19036627 (USE FORMAT 7 OR 9 FOR FULL TEXT)
ActiveX unmasked. (Internet/Web/Online Service Information)

Jan , 1997
Word Count: 3516   Line Count: 00287
Company Names: Microsoft Corp.--Standards
Industry Codes/Names: CMPT Computers and Office Automation; BUSN Any type of business
Descriptors: Computer software industry--Standards; Object-oriented programming-- Standards; Internet--
Standards; World Wide Web--Standards
Product/Industry Names: 7372000 (Computer Software)
Product/Industry Names: 7372 Prepackaged software
Ticker Symbols: MSFT
File Segment: CD File 275

8/8/35 (Item 4 from file: 148)
Gale Group Trade & Industry DB
09281532   Supplier Number: 19134606 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Lotus SmartSuite 97: now smart enough. (includes related articles on SmartSuite's Internet tools, integration,
ScreenCam application) (Software Review)(Evaluation)

March , 1997
Word Count: 4968   Line Count: 00382

Special Features: illustration; other
Company Names: Lotus Development Corp.--Products
Industry Codes/Names: BUS Business, General; CMPT Computers and Office Automation
Descriptors: Integrated software--Evaluation
Product/Industry Names: 7372 Prepackaged software
Ticker Symbols: LOTS
Trade Names: Lotus SmartSuite 97 for Windows 95/NT (Integrated software)--Evaluation
File Segment: CD File 275

8/8/36 (Item 5 from file: 148)
Gale Group Trade & Industry DB
09163899   Supplier Number: 18921296 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Year in review. (March- June 1996) (Industry Trend or Event)

Nov 25 , 1996
Word Count: 18187   Line Count: 01419

Industry Codes/Names: CMPT Computers and Office Automation; BUSN Any type of business
Descriptors: Computer industry--History
File Segment: CD File 275

8/8/37 (Item 6 from file: 148)
Gale Group Trade & Industry DB
09145287   Supplier Number: 18847703 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Design and content: better unbundled?(new authoring tool from Archetype Inc.)(Digital Technologies)

Nov , 1996
Word Count: 567   Line Count: 00048

Special Features: illustration; other
Company Names: Archetype Inc.--Product development
Industry Codes/Names: ARTS Arts and Entertainment; PUBL Publishing; BUSN Any type of business
Descriptors: Computer software industry--Product development; Graphics software--Product development; Graphic
arts industry--Computer programs; Desktop publishing-- Computer programs; Electronic publishing--Computer
programs
Product/Industry Names: 7372002 (Applications Software); 7372205 (Graphics Software Pkgs)
Product/Industry Names: 7372 Prepackaged software
File Segment: TI File 148

8/8/38 (Item 7 from file: 148)
Gale Group Trade & Industry DB
08779826   Supplier Number: 18361003 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Battle for the Internet infrastructure. (competition between Microsoft and Netscape Communications)
(includes related articles on Java and Microsoft's ActiveX) (Company Business and Marketing)(Cover Story)

May 1 , 1996
Word Count: 5149   Line Count: 00419

Special Features: illustration; table; graph
Company Names: Microsoft Corp.--Marketing; Netscape Communications Corp.--Marketing
Industry Codes/Names: CMPT Computers and Office Automation
Descriptors: Internet--Products; Computer software industry--Marketing
Product/Industry Names: 7372600 (Communication Software Pkgs)
Product/Industry Names: 7372 Prepackaged software
Ticker Symbols: MSFT; NSCP
File Segment: CD File 275

>>>W: "FREE" is not a valid format name in file(s): 347-349

? t s8/7/32

12103529   Supplier Number: 59021365 (THIS IS THE FULL TEXT)
Getting Out of the HTML Business: The Database-Driven Web Site Solution.(library resource networks)

Antelman, Kristin

Text:

Library Web sites have grown in size and complexity over the last several
years without a corresponding growth in the sophistication of the
underlying technology. Web managers are struggling to control their sites
using only the primitive tool of HTML. Under this constraint, it is hard
for the library to deliver information with multiple access points and via
user-defined displays. CGI (common gateway interface) scripting, the tool
traditionally used to deliver dynamic content, finds limited use on
most library sites due to the programming skills necessary to support it.
Fortunately, there are new tools available that allow Web managers with
minimal technical skills to create database-driven Web
sites and, at the same time, streamline the Web management process
within their organization.

* The Challenge
     Today's library Web site plays a central role in meeting the
library's mission of delivering information and services, a role it did not
play even three years ago. This is true for all types of libraries. Like
most Web sites, library sites undergo a major redesign about every two
years. Significant resources and organizational commitment are being
invested in current efforts to revamp Web sites, which is indicative of the
Web's prominent role. One new area to which resources are being devoted is
usability testing, which tends to reveal a range of navigational and other
problems. By creating "Web manager" and "electronic resources" positions,
the library acknowledges that managing its site is no longer a one-person
job. Thus, whether or not they are conscious of this evolving
dynamic, libraries are taking steps to address the substantial
technical and organizational challenges posed by the second-generation Web.
     As the library continues to replace traditional resources and
services with their electronic counterparts, the webmaster model of Web
site management has become inefficient. The webmaster model fails because
it lacks flexibility and scalability. From the early days of the Web, staff

have been trained (or learned on their own) how to code HTML and then write pages for the Web site. HTML editors play a greater or lesser role here, but the picture is basically the same: the author submits pages to the webmaster who links them into the site. Either by design or de facto, the webmaster has become responsible for soliciting content, ensuring stylistic conformity, and handling other coordination tasks. Inevitably, some staff resist learning HTML or learn it poorly, resulting in time-consuming recoding. As sites grow both in size and the number of people involved, the sheer volume of HTML-coded pages and the links they contain have become unmanageable. Templates, validators, and link-checking utilities can stave off the chaos only so long.

The role of a Web site in the library is also continually evolving. Library Web sites circa 1995 gave the library a presence within its larger context (e.g., the university, the community) and provided basic information about the library such as its hours, links to locally held electronic resources such as the online catalog and citation databases, and links to selected Internet resources. Now, at the end of the decade, the library's Web site is on the ascent, while the catalog is in decline.(1)

The Web is the logical point of integration for nearly all library resources and services, and serves as the preferred access point for local as well as remote users. One of the reasons catalogs are being "relegated to a smaller and smaller role"(2) is because their data are not easily interchangeable with other data, particularly Web-based data. The Holy Grail for users of journal literature is the direct link to the full text from the online citation, which is a rapidly emerging reality. Online books are not far behind. With delivery of library resources highly focused around a single medium, it becomes incumbent upon libraries to utilize the tools necessary to adapt their expertise to that medium.

User expectations add another dimension to the problem. Fresh from their experiences at Yahoo! and Amazon.com, users expect to view information in a variety of intuitive configurations. They come to a library site reasonably expecting to be able to browse electronic resources by title and subject, search for them by keyword, or even view them by publisher or some other variable. Some of these displays can be extracted from the online catalog by a skilled searcher, but others are beyond the capability of the catalog entirely. They may also reasonably expect that the site should "know" them and present them with a display tailored to their information needs.

The dynamic Web is not a novel idea. From the technical perspective, the Web has been dynamic from its inception. Every query to a search engine or form submission uses technologies behind the scenes for serving up dynamic content. CGI (common gateway interface) scripting in Perl typically supports those features. Most CGI scripts are custom written, but there are also repositories of scripts for free public downloading. Although many library Web managers download and modify those scripts to provide dynamic content on their sites (typically back-end support for forms), the absence of local programming expertise often limits their use.

To move forward, libraries must stop thinking of their Web sites as collections of HTML pages and view them as dynamic resources for

information and services that patrons will use in highly individualized ways. Achieving such a site is not possible with HTML alone; it requires use of tools that can support dynamic content. Tools that libraries can afford and use quickly to create useful applications are now available, but the tools are only part of the picture. The hardest part is the reconceptualization of the Web site that must take place and the development of the data models that will underlie the delivery of dynamic content.

* The Database-Driven Web Site Solution
    Tools
    A number of Web technologies fall under the rubric "dynamic ."(3) Dynamic HTML (DHTML) and JavaScript both allow a Web page to change after it has been loaded in the browser, typically by relying on a combination of style sheets and scripts, but they both deliver a dynamic look, not dynamic content. Some Web management and database packages support database-linking capabilities that are based on a "publish to the Web" model. One example is FileMaker's FileMaker Pro, which, although severely limited in its customizability and scalability, can quickly and easily make databases available on the Web.(4) Another example is Microsoft Access 2000, which supports Web database publishing. These tools do not produce dynamic content, however; "publish to the Web" software writes static HTML pages to the Web server. In addition, some HTML editors (e.g., Microsoft FrontPage, NetObjects Fusion, and Allaire HomeSite) offer "database" capabilities in the form of wizards or shortcuts for creating ColdFusion or Active Server Pages code, but they require that the database technology be present .on the server side.
    True dynamic content is created only through server-side processing. One standard feature of Web servers is the server-side include (SSI). SSIs take advantage of the Web server software's ability to pull "macros" from files and insert them into pages as they are delivered. They are typically used to deliver standardized headers and footers, but the primary tool for creating dynamic content on the Web has always been CGI. An open standard supported by all Web servers, CGI scripts are able to create pages on the fly, thus incorporating user- and database-provided input to deliver dynamic content. CGI scripting continues to be a solution for environments that value its platform independence and have access to staff with the requisite technical skills. CGI does have some drawbacks: because it spawns a new program for each user request, it can be slow. The final option for server-side processing is software that communicates with the Web server via a vendor-specific application programming interface (API). This solution offers speed (only one instance of the program is active at a given time), as well as powerful development tools that allow nonprogrammers to create useful applications.
    "Application server" software falls into the category of a vendor-specific API interface to the Web server. Application servers can support many client/server services, including authentication, session

management, and load balancing. Their core functionality, however, is data access. In the classic "three-tier" model, application server software plays the role of middleware, sitting between the Web server and a database

to support delivery of dynamic content to the browser (figure 1).(5)
The application server accesses the database via either a native database
interface or using a standard protocol, open database connectivity (ODBC),
and a common query language, structured query language (SQL).
      (Figure 1 ILLUSTRATION OMITTED)
      The application server market offers a number of solutions, many of
which are designed and priced for large-scale business applications.(6) The
most popular application server in the "develop-and-deploy" category for
small to medium-sized organizations is Allaire's ColdFusion.(7) ColdFusion
provides a well-integrated development environment, including a client
based on the HTML editor HomeSite that allows quick development of Web
applications. ColdFusion's markup language is integrated into the HTML
coding of pages and functions much as SSIs do, expanding the codes into SQL
queries to the database and delivering the results to the browser in HTML.
ColdFusion also comes with the Verity search engine.
      Another option in the "develop-and-deploy" category is Everyware
Tango.(8) Tango offers a drag-and-drop development environment. Like
ColdFusion, Tango uses its own markup language, which is integrated into
the HTML coding of the page. Tango is scalable and compatible, but its main
distinguishing feature is its easy-to-learn visual interface.
      A related category of the application server is the "page server."
Microsoft's Active Server Pages (ASP) is an example of a page server
application, meaning the coded pages are loaded and executed inside
Microsoft's IIS Web server.(9) ASP is an

object-oriented scripting
environment that uses the VBScript language (although it can support
others). Like ColdFusion and Tango, ASP scripting is embedded in an HTML
page. It can define and connect to an ODBC data source, execute SQL
queries, and deliver the results to the browser in HTML. In practice, a
developer using ASP could implement the same applications he could using an
application server, but the developer should have some programming
experience.
      Another increasingly popular page server solution is the Open Source
PHP.(10) PHP is a server-side, cross-platform scripting language similar to
ASP that interfaces with the free MySQL database, as well as others. Like
ASP, it is designed for developers with programming experience but has the
advantage of being free and platform independent. Other Open Source options
include AOLServer and Meta-HTML.(11)
      The technical skill threshold necessary to utilize these tools is not
much higher than the skills required to use "publish to the Web" database
tools, and the payoff in flexibility and scalability is much greater.
Experience with relational databases is important (and not hard to find or
acquire for the ubiquitous Microsoft Access), as is an understanding of the
Web and HTML. It is undeniable, however, that some programming skills, or
at least an aptitude for application development, will reduce the learning
curve.
      Applications
      As librarians, most of our collective experience organizing
information into databases has been focused on creating and maintaining a
shared bibliographic database (OCLC) and implementing local integrated
library systems. The structure of online catalog data is the same as it was

in the paper catalog, including the subject classifications we use. These highly structured classification systems have been successful in organizing the information in the catalog because of the homogeneity of the data. Web sites are not analogous.

Information on the Web is heterogeneous, containing links that range from meta-sites to single Web pages and encompassing a wide range of formats and data types. It is difficult to impose highly structured organization on that range of content.(12) In their book, Information Architecture for the World Wide Web, Rosenfeld and Morville describe the different data structures that are appropriate at different levels of a Web site. At the top level, some type of hierarchical organization is natural and essential. At the level of individual pages where information is the least structured, a hypertext link between pages is the most appropriate data structure. In between the home page and individual pages lie collections of structured, homogeneous information. That is the content that is best organized according to a database model.(13) As our electronic collections develop, that segment is the fastest growing and most heavily

accessed information on our Web sites. A display solution that works for a collection of one hundred electronic journals is not likely to work for a collection of ten thousand. The application server is a solution designed to support scalable applications.

Library Web sites, probably more than most, contain lists of all kinds: directories of local information, Internet resources, and various library holdings reproduced in list format for the convenience of library users and librarians. It does not take long to realize that coding and maintaining lists is an activity that does not scale. That reality is particularly stark when one considers the desirability of viewing the same data in multiple ways: an alphabetical list by title; a list sorted by subject category, format, or publisher; the whole database searchable by keyword. The current trend in the electronic information marketplace toward vendor-aggregated content and commercial sites striving to your "portal" of choice does not necessarily serve the best interests of the library user. A patron may know that they want x journal, or information on y topic, but is unlikely to know that x journal is contained in aggregator a and not b, or that aggregator b and not a is the best choice for searching content on y topic. Of course, as always, it is the librarian's job to help match the user's need with the appropriate resources. The database-driven Web site can make that task easier. Providing title-level access to content in aggregator collections is one way. Another strategy is to implement site-wide subject searching, or browsing, that would result in a single page displaying links to all types of electronic information on a given topic drawn from many places on the Web site. Once all appropriate substantive content on a Web site is database-driven, powerful search capabilities such as site-wide fielded searching are possible, which greatly improve upon the generic site-wide keyword index.

There are many useful applications in the area of delivering customized Web pages and increasing the interactivity between the user and a Web site. The appeal of sites that "know" something about you has been amply demonstrated by Amazon.com, eBay ("My eBay"), and others. There are prototype projects being done in libraries now to deliver customized "My

Library" pages.(14) If that idea turns out to be a successful one in the library context, application and page server tools could bring supporting such features within the reach of most libraries. Another useful twist on the idea of customized pages is to be able to deliver different pages to users based on where they are coming from (as an indication of their access rights) or other profiling information they may provide at some point while using the site (for instance, membership in a group or demographic information).

Most libraries support online forms for such services as reference questions, interlibrary loan requests, and comments. Usually CGI scripts, often freely distributed by their authors, support those forms. The output of the form is generally sent as e-mail to the appropriate person or department. But information contained in the e-mail is flat, and cannot be integrated with other information unless copied to another application. A form supported by an application server can instantly update a database with the submitted information, while sending an e-mail notifying the appropriate person that the database has been updated. That database may then be able to communicate with other applications, e.g., the interlibrary loan system.

Other potential applications are simply a by-product of putting useful data into a relational database, namely, the ability to answer questions about your electronic resources. As long as the content of a typical library's Web site is locked into HTML pages, this is not possible. Some questions a database could answer would be: Which electronic journals do we have from x publisher?(15) How many journals do we get free online with print? Which resources still require ID/password access? Some integrated library systems support questions like these, but unless the records are enhanced and updated, the desired information is incorrect or not present. If use statistics, which can be gathered in a uniform way using application server technology, are incorporated into the database, it becomes an even more useful management tool. Additionally, once the content is freed of HTML and put into the flexible database format, it can be used to output information in other formats, such as brochures, user documentation, or printed directories.

Planning and Implementation

Creating a dynamic Web site requires careful thinking about the site as a whole. While parts of a site can be made dynamic within an existing structure, the benefits will be far greater if the project can be integrated into a site-wide redesign. The redesign process will address fundamental issues about content and functionality, navigation and searching, and plans for growth--all of which pose problems that can be solved by database-driven content. In addition, developing dynamic content is an iterative process, and the redesign effort, itself intrinsically an iterative process, offers the framework within which experimentation can take place.

The database or databases should not be designed with only Web display in mind. Like the integrated library system, these databases should be created with the intent to use them for multiple purposes. A well-designed relational database describing any collection will find multiple uses and users. The battle over whether or not to maintain duplicate databases (that is, in addition to the catalog) is essentially over; because of the Web's flexibility as a display medium, as well as its

intense popularity with users, the data have made their way to the Web already. Some libraries have found ways to extricate some of the data from their catalog, but all have created substantial independent content for the Web.(16) Whether or not data are extracted from the catalog, it is useful to be mindful of ways in which technical services and collection development staff could use the database and include those people in the design process. They have expertise in the bibliographic and acquisitions issues that will surely arise. In fact, the logical outcome of the project will be that they are responsible for all or part of the maintenance of a database pertaining to collections of electronic resources. Likewise, public service staff should be involved in database design and maintenance of forms, Internet resource guides, and other service-oriented projects.

Because it is impossible to predict in advance all the information associated with an item that should be recorded in the database, work on the Web display should occur in tandem with the database design. It will inevitably happen that certain fields and logic will have to be added to the database in order to achieve the desired display. There will be a dozen or more iterations of both database and Web display before all parties are satisfied. Self-evidently, the richer the database, the more useful it is (while, of course, the more work it is to create and maintain). Designers should think about ways to describe items in new ways: instead of height and number of pages, an item could be coded "free" or "includes full text." Metadata elements could be coded. For Internet resources, there is much information relating to licensing and access to include. Which of your communities has access and how? Does the library obtain the item free, as part of a print subscription, or as part of consortial access to a collection? What are the electronic holdings? What are the IDs and passwords associated with accessing or managing the item online? In creating these data, it is important to consider where controlled vocabulary is necessary (fields that will be searched or browsed, as well as fields for which global updating or querying makes sense) and where it is not (note fields). Database input forms can be designed to "enforce" the controlled vocabulary by providing drop-down lists of choices. Additionally, database designers gain another measure of control through effective use of the database software's data type definitions (e.g., numeric, Boolean, yes/no, time/date, text).

The Web interface design issues for

dynamic content include
all the standard design issues, but application and page server tools provide the flexibility to make choices that are not practical with HTML. For instance, it may be desirable to have a "gateway" page before linking to an off-site resource, in order to provide the user with information about access restrictions, scope notes, and so on. In HTML as many pages as there are individual resources must be created; in a dynamic site, one page is coded. In an HTML-based site, chunks of information (e.g., "reference resources on x topic") must be hard-coded for as many topics as there are and on as many pages as they are referenced; in a dynamic site, a "reference resources" page is coded once. If there are thousands of such resources, the efficiency of the database model is clear.

Once the framework for dynamic content is in place, it is important to be aware of all the ways in which it can be exploited. Application server environments can support SQL queries across databases as well as within a single database. In addition, they can reference queries that have been created on the database side in order to take advantage of the full query-building features of the database software. Database queries encoded in URLs are stable, which means that Web page authors as well as catalog records can link reliably to the local database, while the appropriate person maintains the URL, holdings statement, access restrictions, and so on. Furthermore, database query URLs don't have to be linked to a specified item; a URL can contain a query to request all items

with a given characteristic, for instance, of a given format on a given subject. Embedding queries in URLs always returns the most up-to-date results.

The gains in efficiency and scalability for Web site management are tremendous. The number of files to maintain will drop dramatically, even as the site grows in size and complexity. Instead of attempting to police the use of templates across the Web site, one file is created for each display page and kept in a secure place. Content is then added through forms in the database itself, which are designed to be appropriate for the users' level of knowledge as well as their authorization to modify the data. The need for HTML training is greatly reduced. Also lessened is the need to ensure that each staff person involved in creating Web content continually updates his or her skills to accommodate changes in Web technology. Under the database model, those training resources can be focused on the technical staff who will be coding the dynamic pages while the others are free to focus on creating good content.

* Summary

Selling the idea of a database-driven Web site is not hard. Neither is choosing the appropriate tool. The challenge is to fully integrate the potential of the technology into the design and management of a site. Making a Web site dynamic will completely transform the way information is delivered, what information can be delivered, and how it is delivered. The logic of a good database design, and then the application server's linking of its various components for display, will pull the site together and add to its overall coherence and ease of use. A dynamic site is tighter, more accurate and timely, and far easier to manage. The process itself will naturally bring together the people in the library who should be involved in organizing and delivering information and services in the electronic environment.

HTML has created an artificial symbiosis of form and content. The Web is good at displaying data; a relational database is good at managing data. Implementing a database-driven Web site allows each tool to do what it does best. It also allows the library to move one step closer to a new, open infrastructure that, together with developments like XML, will continue to separate content from container, thus opening up new possibilities for flexible display and intelligent manipulation of information.

Many readers will be uncomfortable with the idea of creating new databases that will inevitably duplicate to a certain extent the catalog,

to which so much time and effort has been devoted. Librarians have long known that patron access drives demand and use. For many of our current users, if the resource is not available online, it is of no interest. Web sites that provide effective access to a large selection of electronic resources serve that need, while Web sites that ineptly present such resources or focus on describing paper resources do not. A near-term goal should be to integrate catalog records and electronic "records" into a single flexible display.(17) Before long, one should be able to integrate MARC content into the local database, structure the data in XML, and link one's database with another, all of which are tasks that are impossible within the constraints of the current generation of integrated library systems.(18) Only at that time will the library collection be unified rather than fragmented by the presence of electronic resources. With this destination in mind, it can easily be envisioned that the databases created to drive a dynamic Web site today will
serve as the foundation for our primary library databases tomorrow. Thus, one can view these databases as transitional objects, but not wasted effort. Some of the most transforming trends now visible in electronic publishing--the movement away from the "journal" as container, for instance--will take at least a few years to fully develop and will affect different types of libraries within different time frames.(19) In the meantime, library Web sites should be as flexible and useful as possible, especially when the effort required to make them so is less than that required to maintain the status quo.

References and Notes

(1.) Virginia Ortiz-Repiso and Purificacion Moscoso, "Web-Based OPACs: Between Tradition and Innovation," Information Technology and Libraries 18, no. 2 (1999): 68-77.

(2.) David W. Lewis, "What if Libraries Are Artifact-Bound Institutions?" Information Technology and Libraries 17, no. 4 (1998): 190.

(3.) For an extended discussion of choosing a database solution, including a detailed discussion of the tools outlined here, see John Paul Ashenfelter, Choosing a Database for Your Web Site (New York: Wiley, 1999). For a more technical, but lighthearted, perspective that is critical of the application server, see Philip Greenspun, Philip and Alex's Guide to Web Publishing, San Francisco: Morgan Kaufmann Pub., 1999. Accessed Aug. 3, 1999, www.photo.net/wtr/thebook/.

(4.) Filemaker, Inc. Accessed Aug. 3, 1999, www. filemaker.com/.

(5.) John Paul Ashenfelter, "Getting Started with Web Databases," Webreview.com. Accessed Feb. 26,1999, http://webreview. com/wr/pub/1999/02/26/webdb/index.html.

(6.) John Paul Ashenfelter, "The Application Server Marketplace," Webreview.com. Accessed Feb. 26, 1999, http://webreview. com/wr/pub/1999/02/26/webdb/index3.html.

(7.) Allaire Corp. Accessed Aug. 3, 1999, www.allaire.com.

(8.) Pervasive Software, Inc. Accessed Aug. 3, 1999, www. everyware.com/products/tango/.

(9.) Wodaski, Ron. "ASP Technology Overview." Accessed Nov. 1, 1999, http://msdn.microsoft.com/workshop/server/ asp/aspfeat, asp?RLD=22. Several solutions are available to run ASP on nonMicrosoft platforms. For instance, Chilisoft (www. chilisoft.com) and Halcyon (www.halcyonsoft.com/index.htm).

(10.) For more on PHP, see www.php.net/usage.php3, www.php.net, and

www.hotwired.com/webmonkey/99/21/. For more on MySQL, see www.mysql.net/.

(11.) "Welcome to the World of AOL Server" Accessed Nov. 1, 1999, www.aolserver.com/; Meta-Html.Com, Accessed Nov. 1, 1999, www.metahtml.com/.

(12.) Louis Rosenfeld and Peter Morville, Information Architecture for the World Wide Web (Sebastopol, Calif.: O'Reilly, 1998): 24–25.

(13.) Ibid., 46.

(14.) Roy Tennant, "Personalizing the Digital Library," Library Journal 124, no. 12 (July 1999): 36–38.

(15.) One problem is the publisher field in our MARC serial records, which according to standard cataloging practice is not updated. "With the exception of the final date of publication, significant changes appearing on later issues are recorded in notes, when considered desirable. Do not clutter the record with minor changes, particularly those that involve commercial publishers," CONSER Cataloging Manual, 10.6. A periodical's current publisher is useful information for managing electronic journals because, for example, if access to one title is "broken," typically all other titles from that publisher will be broken and need to be coded not to display on the Web.

(16.) One option is to use the MARC record as the central database record. Such a project at Los Alamos National Laboratory is described in Frances L. Knudson et al, "Creating Electronic Journal Web Pages from OPAC Records," Issues in Science and Technology Librarianship 15 (Summer 1997). Accessed Aug. 3, 1999, www.library.ucsb.edu/istl/97summer/article2. html. Information pertaining to the electronic version of a journal was coded in a local 956 field. Customized CGI scripts were written and run nightly to extract records from the catalog and reformat them into various HTML displays.

(17.) Such research is already underway in the Stanford Lane Medical Library "Medlane" project. Dick Miller described their research at the Medical Libraries Association annual meeting, May 15–19, 1999, Chicago, IL. His presentation is available at http://krypton.Stanford.EDU:8080/~dmiller/.

(18.) Ortiz–Repiso and Moscoso, 74–75.

(19.) Declan Butler, "The Writing Is on the Web for Science Journals in Print," Nature 397, no. 6716 (Jan. 21, 1999): 195–200. Projects such as E-biomed (www.nih.gov/welcome/director/ ebiomed/ebiomed.htm) and BioOne (www.arl.org/sparc/ bio1.html) are taking significant steps in this direction.

Kristin Antelman (kaa@ahsl.arizona.edu) is Head, Systems and Networking, at the University of Arizona Health Sciences Library.

02002874   Supplier Number: 18855032 (This Is The FULL TEXT)
Building and managing sites. (Web sites) (Technology Information)

Text:

The content of a complex Web site can encompass hundreds or thousands of
individual text or graphic files. Until now management was a mix of post-it
notes, voicemail, E-mail and FTP software. A new category of software is
emerging to manage the flow of content to the Web. More open than the
editorial systems of the past, content management systems offer the same
functionality for a new medium.

Some Web sites are not unlike newspapers. There are numerous contributors:
news writers, columnists, photographers, artists and advertisers. Content
changes quickly, and all the sources don't report to the same person, or
perhaps to anyone at all. While the newspaper business has had decades to
fine tune its workflow and job tracking process--not to mention going
through several waves of technology and vendors--Web publishing has barely
been around long enough to establish procedures. Other sites are more
bureaucratic, providing authorized information to employees and customers;
content changes more slowly, but it still changes and still must be
managed.
    Web sites are becoming increasingly complex and, not surprisingly,

some sites are turning to pages served by databases to solve the problem.
Certainly this can address the problem of delivering customized pages on
the fly to the reader, but it doesn't handle the issues of content workflow
or tracking. Most often this is accomplished by setting up a queue
structure on a shared disk and establishing procedures. If time permits,
the system might even be documented. Content revision and tracking are
often done on an ad hoc basis.
    Content management is a multiple-step process, and software is only
part of the solution. First, workflow must be mapped and directory
structures defined. Once completed, the map must be analyzed to determine
any bottlenecks in the process. As these are ironed out and the process
streamlined, accountability or tracking must also be introduced. Exactly
where did that graphic with the incorrect advertiser's url come from? Who
proofed it?
    Scheduling can also be an important feature on some sites. Movie
reviews need to go up the day the film opens, for instance. With planning,
the content can be encapsulated in a form that is logical to the user. An
editor should be concerned with a story rather than html and jpeg files.

Lastly the process must be automated so that it becomes unobtrusive for the users.

New entrants. We expect this category will become crowded with a host of vendors serving different niches of the market. As one might expect, at the start of the market we have a few upstarts. At SSF, for example, we found Ikonic, Kobixx and Vignette, all new companies focused exclusively on Web management tools. Also at the show was NetObjects, which by now has shipped Fusion, a product we looked at last month. As we went to press Microsoft announced FrontPage 2.0 (see story on page 3). All of these products deal exclusively with management of a Web site; there is no management of material for other media.

What we're not yet seeing are many vendors with systems that manage content for both print and online media. To some extent, the sgml-based editorial systems (Xyvision PDM, Texcel, XSoft Astoria) do this for reference publications. In general, because they are less bound to specific print layouts, content-driven applications (books, manuals, etc.) are a little easier to adapt to the new multiple-prong publishing model. However, all genres of publishing are making the migration, and all of them will have to change not only their systems but also their workflows and operating procedures in the process. Like many of you, we'll be looking for vendors that understand those issues and address them with products designed for integrated media and information management.

EBT tests DynaBase

EBT demonstrated DynaBase, its Web management system announced over the summer and currently in field testing. Running on nt and Unix servers, DynaBase is a object-oriented database with EBT's application for managing html pages and their components.

DynaBase is aimed at developers, so some aspects of it, like template authoring, have no slick gui. Instead, EBT provides Visual Basic scripting, with a script editor and debugger.

Full-text indexing is built into DynaBase and should be improving shortly with the addition of linguistic tools from EBT's new parent, Inso Corporation. Ad management is currently not provided.

EBT has bucked the trend of making all your management tools run in a standard Web browser. That makes its client less portable, but it has enabled EBT to create a rich client with a nice user interface. A three-pane screen shows the folder structure in one window, a selective directory in another and versions or links in another. In addition to providing full version control, this product has the notions of publication editions, making it particularly well suited to material that is revised and updated over time. (Editions might also be used to disclose portions of the database selectively to different users, depending on their profiles.)

If you're looking for a rich development and general-purpose Web management environment, rather than a package tailored to a specific niche, DynaBase is worth a look as an alternative to Informix, Oracle or other straight database development environments.

The DynaBase nt client and server (for Netscape's FastTrack server) software are available now from EBT, which is seeking vars. Unix-based servers and support for Microsoft's nt Internet Information Server are planned for the first quarter of 1997.

The DynaBase server costs $4,000 per cpu on Unix and $2,000 per cpu on nt. The client software costs $200-$300, depending on the quantity ordered.

HexMac adds TrueDoc, forms processing, CD-ROM to HexBase

In addition to its Xpress-to-html conversion utility (see page 15), HexMac has a Web database called HexBase. It continues to draw attention, more than a year after its initial release. At SSF, HexMac introduced version 2 of HexBase.

HexBase 2.0. Version 2.0 adds support for TrueDoc so that HexBase can produce dynamic html with real fonts. The only roadblock remaining is for the Web browsers to add support for TrueDoc.

Version 2.0 also offers dynamic form processing, which changes the content on a forms-based page depending on the selections you make and the contents of the popup and multisection lists on the html page without directly querying the database and generating a new html page.

Take, for example, an online car catalog. Users browsing the Web would be presented with a typical-looking forms-based html page. Users can choose from a list of car models (Taurus, Escort, Explorer) and styles (2-door, 4-door, hatchback, stationwagon, etc.). As a user selects a car model from one column on the form, a second column would display the choices available only for that model. If another car is selected, the form field (not the entire page) is instantly updated with the choices available for the currently selected model. The scenario can be extended to include additional fields on the same page, so once a car style is selected, the user may be presented with a list of other options available for that particular style car.

The HexBase MailBack feature allows users to register their queries with the HexBase database. As changes to the database are made that match these queries, the database notifies the user via e-mail that there are updates.

On the drawing board are plans to add a direct connection to the Ad Layout System from Managing Editor (HexMac's U.S. distributor), as well as direct import of news agency wires or videotext. The latter feature will grab feeds from more than 30 news agencies, generating dynamic news pages that will be updated automatically.

Version 2.0 can also handle multiple domains in one database and supports the automatic uploading of images from the client's browser.

Recent projects involving HexBase database include TV Today's Online TV (www.tvtoday.de), which feeds live images and videotext from each channel you add. Images are updated every 5 seconds.

HexMac has also created an online soccer game, SuperTrainer, for the German publisher, Bild. SuperTrainer, the most popular game in Germany at the moment, boasts, works similarly to fantasy football in the U.S. Instead of just picking teams to bet on, you create your own team based on players in the league. Each person can create up to ten teams. The database keeps track of how many points each of your team members scores and produces a weekly tally for you. At the end of the season, the person with the highest scoring team will win DM20,000.

Intranet CD. HexMac has further extended its HexBase database technology to the production of catalogs for distribution on cd-rom. HexBase Intranet CD works backwards from most database applications in that it allows you to repurpose material used on the Web into a cd catalog without modifying the data.

The most important aspect of this development is that the database, which is Web based to begin with, does not require a network environment or

an http daemon and is platform independent using Netscape Navigator 3.0 as a client browser. The only software needed in addition to the browser software is a plug-in called HexBase Catalog Plug, which is essentially a runtime version of HexBase running inside of Navigator. Like its Internet counterpart, HexBase Intranet CD generates html pages dynamically based on user queries.

Not only can information be retrieved from the cd database, but additional or updated information can be retrieved using an Internet connection. Thus, static information, such as images of products, can be placed on the cd, while current information, such as prices or numbers of items in stock, can be downloaded from a central Web server. The products from the cd-rom can also be ordered using the online connection. Intranet CD can also be configured to check the online database first to see if pricing and availability of an item have changed. Online access can also be password protected.

Intranet CD can run under Windows 95, nt and the Macintosh operating systems. The HexBase Web Database requires a Unix platform.

A HexBase Web Server license for unlimited client access costs approximately $20,000. HexMac also charges a licensing fee for each cd pressed (about $4 for up to 5,000 copies). The licensing fee for Netscape Navigator or Microsoft Internet Explorer is not included.

Several major German industrial companies are considering replacing their Adobe Acrobat-based cd catalogs with Intranet CD, because of its interactive Web capability and platform independence.

Ikonic releases Ringmaster 2.0

Ikonic has been in the business of creating interactive media for over ten years. It started designing laser discs and moved to cd-rom multimedia, interactive television and the Internet. In the process, founder Robert May coined the term "consumer intimacy" to describe his company's approach to

creating personalized, interactive experiences for viewers. Much of his firm's work has been on high-profile projects, including Time Warner's Pathfinder Web site; News Corporation's Star TV and Star Entertainment Network digital television; the Lycos interface; and Dow Jones's Personal Journal.

In the process of developing large sites, Ikonic saw the content management process close up. Sensing an opportunity, it surveyed the content management process at 30 leading Web sites and found for the most part there wasn't one.

Submit, accept, reject. The underlying principle of Ringmaster is based on the simple workflow notion of a submit-accept-reject "ring" and active

containers, or directories, that initiate actions when files are placed in them.

Since Ringmaster focuses on the process of building Web sites rather than the creation of content, it is tool independent. Content creators use whatever development tools and hardware platforms are appropriate; whatever text or wysiwyg Web editors, paint and draw packages, or multimedia authoring tools they want to. Completed files

are submitted by dragging them onto a folder representing a holding queue for review by an editor or webmaster. At this point, the author must complete a short work ticket dialog and can add any comments to clarify why the file is being submitted. The file then moves to another part of the system, and the editor is notified via a changed icon on the desktop that there is a file awaiting disposition. If the reviewer accepts the file, Ringmaster forwards it to a staging area for the live Web site. If the reviewer rejects it, Ringmaster returns it to the author's queue for revisions. The system is flexible enough to build any number of nested queue structures to allow for different levels of approval. Network-level security is used to prevent content creators from circumventing the review cycle.

Once a file is in the ring it is tracked from several perspectives. Dragging a file onto the Ringmaster status icon makes a history of the document's lifecycle available. Creator, editor, submission date and time, review status, and any notations are accessible. The Ringmaster application maintains a map of the Web site that displays the relationship between files, scripts and embedded objects. Links are synchronized so if files are moved to another directory on the site the links referenced on the Web pages are automatically corrected.

Ringmaster supports servers running Solaris or Windows nt 3.51 or greater. The Ringmaster client requires Windows 95, Windows nt 4.0 or the Mac os 7.1 or greater. There are several product configurations available. Ringmaster Trio is a three-user, one-server package that costs $300. Ringmaster Web Team is a 12-user, one-server package priced at $1,000. Ringmaster Web Team Plus costs $3,000 and bundles onsite consulting services to analyze workflow and deliver a turnkey solution.

Perspective. Being the first one in the arena is not necessarily an enviable position. What is gained by being able to grab market share might be lost in the future, because you are doing the test marketing for your competitors. We'll likely see some jockeying for market position as vendors try to determine the best balance between cost and features, shrink-wrapped software and consulting services. The increased focus on serving personalized pages on the fly from relational databases (rather than pre-built html from the operating system) may lead to packages that bundle content management with content serving.

Ringmaster does a decent job of routing and tracking documents, but there's always room for improvement. We'd like to see a more flexible interface, especially the ability to customize the Submissions dialogue so custom fields could be added to track site specific criteria. Ringmaster provides content management in the form of link checking and auto link correcting, but it ignores scheduling. While you can see what files are awaiting approval, you are unable to tell easily if they are part of a job that is behind schedule. Not all sites require tightly controlled schedules, but it would be a nice feature to add. That aside, Ringmaster is a promising product for streamlining and getting a better grip on the process of maintaining a Web presence.

Kobixx readies EZine Publisher system

Last month we wrote about Kobixx's SiteTree, a utility that builds a tree view of any html Web site (Vol. 1, No. 1, p. 29). SiteTree is only one component of a whole suite of software Kobixx is developing for Internet publishing. At SSF it introduced its first turnkey system, EZine Publisher,

which is intended for publishers creating electronic magazines.

Simple setup. For businesses that want to get a site up relatively quickly and without blowing their whole budget planning a unique information architecture, EZine Publisher has a good pitch. The product comes with a handful of wizards that step the user through the process of setting up the initial framework of the site. There are modules for managing content, production, advertising and fulfillment, some of which are in the basic package. Others are in the optional "Pro" package.

All of the modules use your choice of relational databases through an odbc connection. Under author management, for example, Kobixx uses the predefined database setup to generate a schema that stores the author's name, pen name, tax id number and other contact and work information. The editor can then query any of those fields in the database, for example, looking for authors who wrote for the September issue or who wrote on a particular topic.

Kobixx is initially testing its product with Access, Oracle, sql Server and Illustra databases.

EZine Publisher handles both work-in-process and published material. Articles may be kept in the system but offline as they are being prepared.

Production. When it comes to making pages, Kobixx has taken a style sheet and template approach that will scale well, should your volume mushroom, and make it easier to keep a consistent look and feel in the content. When storing articles, you match them to templates, and EZine Publisher automatically pours the content into the template on the fly when a reader asks to see the article.

At this point, all pages are generated dynamically; EZine Publisher does not cache frequently accessed pages. Steve Pendergrast, Kobixx's chief technical officer, hinted that the next release will provide a way to store more static pages.

Some predesigned article templates are included. Though not overwhelmingly creative, they are a good start for creating your own templates (see photo).

Other production management features are primarily reports that indicate status or usage. There are presupplied reports for ads, subscribers, issues, articles and authors. All of these are appealingly graphical (see photo, p. 21), but may also be exported as Excel files. Although one will inevitably want to write custom reports, the built-in reporting features are a strength of the product. The interface for setting parameters is intuitive, and you instantly get very readable graphs.

You can also write your own reports using the report-writing tools of your database. If you prefer, you can ask Kobixx to write reports for you as a service.

SiteTree bundled. SiteTree is included with EZine Publisher, and it serves both reader and publisher. For publishers, because a Web browser is used as the client software for EZine Publisher, SiteTree provides an attractive folder view of the site. However, it does not yet provide a way to manipulate directly from within the outline frame, the way you'll be able to next year with Microsoft's Internet Explorer 4.0. Building in such functionality would be a big plus--as it is, you do most of your adding, moving and deleting of files through the file system, rather than from within the application itself.

SiteTree is perhaps more useful to readers new to the site; they can

use a subset of the same tree to navigate through it, without expecting that they can modify the structure of the tree.

Ad management. A more appealing aspect of the product is its advertising management, which is sold as a separate $8,595 package. It keeps track of ad orders and placement, pointing to ads that actually sit on the file system instead of in the database.

Ads are entered and assigned run dates using an on-screen calendar. In addition to scheduling, each ad has placement and probability settings, so you can tie ads to one publication, to an article or to a certain type of article, and tinker with the degree of "randomness" in random ads.

Kobixx cycles ads, and can cycle them so that readers do not see the same ad twice until they've seen them all. It has a built-in e-mail generator that automatically notifies advertisers of hits on their ads.

By next year, Kobixx hopes to use demographic information to target ads and to change ads based on reader behavior, such as which stories they read.

Advertisers can get real-time reporting from your site. Using a standrad Web browser, the advertiser can log in with a password and get statistics and graphs on the fly, without your having to report to them. Using the system security features, the advertiser sees only its own statistics, not those of any other advertiser.

Subscriber management. This module, part of the Pro package, handles three types of subscription models, all of which presume free subscriber access underwritten by ads and sponsorships. Kobixx has not yet developed paid access tracking, but will consider it as part of its secure commerce development if customers are interested.

The three subscription models are open subscription (everyone gets in free right away); open with optional survey; and controlled circulation (you must fill out the survey to get access).

Kobixx's module provides a wizard that makes it easy to set up the

survey and tailor it to your audience. It produces the html forms for the survey, provides a way for subscribers to sign on and takes care of keeping track of their responses. The important thing, though, is that it generates reports for the circulation manager.

Subscribers are kept in an odbc-compliant database. (If you already have your subscribers in a fulfillment or circulation database, and don't want to hook that database up to the site, you'll have to develop both export and import routines to get old subscribers into and new subscribers out of EZine's database.)

Other features in the Publisher Pro package include automatic e-mail reminders to authors, production scheduling and more detailed reports.

Analysis. EZine Publisher is more complete as an online publishing system than most products. It covers all aspects of the business, and offers a shrink-wrapped approach to getting up and running. Reporting is a particular strength of this product. If you built a site but skimped on the reporting, it may well be worth a look.

For existing magazine publishers, a distinct weakness of this first version is that it lacks built-in data conversion utilities. Who gets manuscripts in html? Who edits in html? A set of filters for word processors, and another for translating Xpress files, would be a welcome

improvement. (You can add these on your own, of course.) On the plus side, Kobixx's ad management may be of interest just as a separate module, even to magazine publishers that already have complex sites.

Other promising targets are individual entrepreneurs, small businesses and corporate publishers that want to create online magazines and newsletters. For them, EZine Publisher helps reduce some of the technical barriers to getting started; the tougher part is getting the content, the subscribers and the ads.

EZine Publisher is written in Java and will be compiled for Win95, nt, Macintosh, Solaris and Silicon Graphics platforms. Early access versions for pcs and Macs are available this month; the commercial release is slated for December.

EZine Publisher costs $5,600; the Pro package adds another $3,000, and the ad management package is $8,600. Even though the pricing is per cpu, it is still very competitive for sites serious about magazine publishing.

SoftQuad previews a hip tool

When we visited the SoftQuad booth, we expected to spend the bulk of our time looking at HotMetal (see page 11 for coverage of version 3.0). By the time we left, however, we were more interested in the company's demonstration of HotMetal Intranet Publisher (HIP), an integrated tool for building, managing and maintaining intranet sites. HIP includes an enhanced version of HotMetal 3.0, which supports batch conversion from any of 15 different word processing formats. The enhanced version will also handle cascading style sheets, making it the first major vendor to add this kind of support. In addition, SoftQuad representatives said this version of the editor will support user-defined tags and hand-coding, two features developers will find especially attractive.

Authoring for an extended tag set. This version of HotMetal allows users to create what SoftQuad calls "pseudo-elements": tag extensions that map custom definitions, such as "part number" or "e-mail address," to user-defined tags. The site administrator or authorized users can then use the pseudo-elements to create navigation frames, called Live Tocs, that provide customized views of the documents. Using the HIP plug-in on a Netscape or Internet Explorer 3.0 viewer, different users can use Live Tocs to view the site in different ways, depending on what sort of information is most relevant to them. Because the Live tocs are

dynamically
generated, they automatically capture any changes in the page code. The main drawback to pseudo-elements and Live Tocs is that they require users to have the plug-in.

HIP also includes a site management tool that is excellent, at least by current industry standards. It supports assignment of tasks, tracking of global editing changes and centralized distribution of pages, creating something resembling workflow management. HIP can also alert an administrator to broken links, downed servers or other problems by sending e-mail or dialing a pager. Administrators can instruct HIP to remove or replace expired pages automatically and to alert them to new or changed pages on sites of interest to them.

Global map. The most graphical part of the HIP site manager is its

visualization tool. Select a page, and it becomes the center of a globe-shaped map that "spins" as you move around the links. The effect is difficult to explain in words, which is precisely the point--it is an intuitive way of presenting complex visual information, particularly for more complex sites. HIP also provides a more traditional tree-shaped site view.

SoftQuad plans to make HIP available sometime in November. The authoring and administration tools will cost $395, and browser plug-ins will cost around $25 per seat.

Vignette targets news sites

For those running Web sites that are news-based, with content changing by the hour or even by the minute, Vignette is worth a look. In the Sun booth Ross Garber, president of Vignette Corporation, showed prerelease versions of Vignette's StoryServer and StoryBuilder products. While not yet on the market, Vignette's software is running on Cnet's news.com Web site. Vignette's products have been in development since October 1995 and will formally enter beta testing in October 1996. The first products should be available by the end of the year. The StoryServer portion of the software suite was originally developed by Cnet under the name Prism (Presentation of Real-time Interactive Service Material) and sold to Vignette in July 1996. At that time Cnet also took a minority stake in Vignette and a seat on its board of directors.

StoryServer is a server-based content production system and delivery database that merges text, graphics and scripting into Web pages. StoryServer streamlines the production process by separating the content from the layout or presentation. Design staff can create "Smartemplates," generic html pages that include layout, interactivity and personalization features. In this way it is possible to quickly create multiple versions of a page that will support the features of the user's browser (frames, Java, ActiveX, etc.). Content is created in standard desktop applications and combined with the presentation component for storage in the server. In addition, StoryServer relies on proprietary caching algorithms for delivery of a combination of pregenerated and on-the-fly pages to the user. Vignette claims that StoryServer has been benchmarked at delivering over one million pages daily from only two Sun Sparc 20 servers with no performance degradation at peak periods. StoryServer currently runs on Sun hardware; a port to nt is scheduled for the first quarter of 1997. Client access is via a Java-capable browser.

StoryBuilder is a workflow program that allows editors and webmasters to control the flow of content to a site and provides a view of the status of elements that can be defined down to a minute-by-minute granularity. The key components of StoryBuilder's workflow model are sections and jobs. A Web site is broken down into sections, and each section has unique properties, including production process, schedule, authors, etc. A job is a discrete entity on the site; for example, a lead story would be a job. The job contains all the elements of the story: text, jpeg images and buttons that link to related stories or past issues. Once a section is defined, jobs may be entered and are routed based that section's properties. Editors are provided with an operations view that shows the status of jobs in progress and completed jobs queued for publishing. If elements are missing from a job, the appropriate person is automatically notified. StoryBuilder currently runs on Sun hardware; a port to nt is

scheduled for the first quarter of 1997. The client runs on any os that supports Java.

Our take. There will be room in this market for a variety of solutions depending on your budget and site requirements. Vignette is staking out the high-profile, high-volume sites that require a combination of rapid content generation, fast data serving and workflow management. The current Sun-based system is a first crack at total content management. It pales in comparison with today's newspaper editorial systems, but our expectation is that the software will increase in sophistication over time based on user requirements.

Vignette expects the cost of a typical installation to start at $10,000.

? d s

Set	Items	Description
S1	69787003	S PD<20000112
S2	406098	S (CREAT??? OR PUBLISH???)(5N)(WEBPAGE OR WEB-PAGE OR WEBPAGES OR WEB-PAGES OR WEBSITE OR WEBSITES OR WEB-SITE OR WEB-SITES OR (WEB(W)(SITE OR SITES OR PAGE OR PAGES)))
S3	95743	S S1 AND S2
S4	7288	S S3 AND (TEMPLATE OR TEMPLATES)
S5	1815	S S4 AND (OBJECT OR OBJECTS)
S6	130	S S5 AND (CONTAINER OR CONTAINERS)
S7	85	S S6 AND (DYNAMIC OR DYNAMICALLY)
S8	65	RD (unique items)

? s s7 and ((minimal or little or non-technical or nontechnical)(3n)(skill or skills or knowledge or knowlege or technical))

Processing

Processing

Processing

	85	S7
	1261053	MINIMAL
	13272281	LITTLE

```
        2   NON-TECHNICAL

    15751   NONTECHNICAL

  1211099   SKILL

  3151176   SKILLS

  4523298   KNOWLEDGE

     1931   KNOWLEGE

  7128571   TECHNICAL

    71050   (((MINIMAL OR LITTLE) OR NON-TECHNICAL) OR NONTECHNICAL)(3N)((((SKILL OR
SKILLS) OR KNOWLEDGE) OR KNOWLEGE) OR TECHNICAL)

S9       21   S S7 AND ((MINIMAL OR LITTLE OR NON-TECHNICAL OR NONTECHNICAL)(3N)(SKILL
OR SKILLS OR KNOWLEDGE OR KNOWLEGE OR TECHNICAL))


?  rd

>>>W:  Duplicate detection is not supported for File 348.

Duplicate detection is not supported for File 349.

Duplicate detection is not supported for File 347.

Records from unsupported files will be retained in the RD set.

S10      19   RD  (UNIQUE ITEMS)


?  t s10/free/all

>>>W:  "FREE" is not a valid format name in file(s): 347-349
```

10/8/1 (Item 1 from file: 15)
ABI/Inform(R)
01970551   48029643
          USE FORMAT 7 OR 9 FOR FULL TEXT
Getting out of the HTML business: The database-driven Web site solution
  Word Count: 4912 Length: 6 Pages
Dec 1999
Geographic Names: United States; US

Descriptors: Extensible Markup Language; Libraries; Web sites; Studies; Online data bases
Classification Codes: 9190 (CN=United States); 5240 (CN=Software & systems); 9130
(CN=Experimental/Theoretical)
Print Media ID: 17511

10/8/2 (Item 2 from file: 15)
ABI/Inform(R)

01729815   03-80805
Pictorius: Team tool
  Word Count: 789 Length: 2 Pages
Oct 12, 1998
Company Names:
Pictorius Inc
Geographic Names: US

Descriptors: Software reviews; Software upgrading; Web sites; Object oriented programming
Classification Codes: 9190 (CN=United States); 5240 (CN=Software & systems); 9120 (CN=Product specific)

10/8/3 (Item 1 from file: 275)
Gale Group Computer DB(TM)
02135336   Supplier Number: 19988385 (Use Format 7 Or 9 For FULL TEXT)
Shaping the future: PDF, XML and the men of the hour, Gates and Jobs. (includes related articles on Intenret
publishing reviews, and Brother's StampCreator) (Seybold San Francisco '97) (Industry Trend or Event)

Nov 17 , 1997
Word Count: 31490   Line Count: 02437

Special Features: photograph; table; illustration
Descriptors: Trade Show Report; Seybold Computer Publishing Conference and Exposition; Printing Industry;
Publishing Industry; Computer Industry
Product/Industry Names: 3573000 (Computers & Peripherals); 2700000 (Printing & Publishing)
SIC Codes: 3571 Electronic computers; 2700 PRINTING AND PUBLISHING
File Segment: CD File 275

10/8/4 (Item 1 from file: 148)
Gale Group Trade & Industry DB
12103529   Supplier Number: 59021365 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Getting Out of the HTML Business: The Database-Driven Web Site Solution.(library resource networks)

Dec , 1999
Word Count: 5269   Line Count: 00426
Industry Codes/Names: BUSN Any type of business; LIB Library and Information Science
Descriptors: Libraries--Communication systems; Database design--Analysis; Database management systems--
Design and construction; Information storage and retrieval systems--Design and construction; Library information
networks-- Design and construction
Geographic Codes: 1USA United States
File Segment: TI File 148

10/8/5 (Item 2 from file: 148)
10534751   Supplier Number: 21215856 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Pictorius: team tool.(Pictorius' iNet Developer 4.0) (Software Review)(Evaluation)

Oct 12 , 1998
Word Count: 999   Line Count: 00087
Company Names: Pictorius Inc.--Products
Industry Codes/Names: BUSN Any type of business; CMPT Computers and Office Automation
Descriptors: Internet--Computer programs
Product/Industry Names: 7372682 (Internet Server Software)
Product/Industry Names: 7372 Prepackaged software
Trade Names: Pictorius iNet Developer 4.0 (Internet/Web server software)--Evaluation
File Segment: CD File 275

>>>W: "FREE" is not a valid format name in file(s): 347-349

? t s10/k/5

10/K/5 (Item 2 from file: 148)

Text:

Application development for the intranet often involves close collaboration
between nontechnical content creators and technical IS
staffers. Pictorius' iNet Developer 4.0 effectively meets this dual
requirement of team-based...

The product empowers nontechnical users with visual tools for easily
creating data-driven, dynamic sites, while giving developers an
object-oriented framework for building customized drop-in
components. Your team members can then develop powerful...

...various content creators use iNet Developer's visual Page Editor to
create pages by assembling objects and agents. iNet Developer
implements a Web Object Model, which represents an iNet site as a
container, with a hierarchical array containing pages and page
elements as objects.

iNet Developer 4.0 adds a neat feature for casual contributors: browser-based content creation...

...edits page elements normally, but marks specific elements as browser-editable.
You can even create template pages, which permit users to create new pages on the fly and add content with...

...This makes managing the site easier, as the pages are added to the iNet site object database.
Because iNet Developer's Page Editor only knows about iNet objects, you cannot preview the imported pages, nor can you edit them within iNet Developer. However...
...any external HTML editor to modify these pages.
Programming framework
Although iNet Developer makes creating dynamic pages as easy as word processing, the underlying architecture provides a sound framework for programmers...

...With the PFCs, Pictorius has remodeled its general-purpose visual programming language, Prograph, into an object-oriented Web application-development platform.
iNet Developer's Application Server is itself a compiled collection...

...code got me oriented quickly.
Another plus for programmers is the ability to create Component Object Model (COM) methods in Visual Basic, C++, or Java. Once registered, these are available to...

...Page Editors.
Extensible platform
The Prograph Foundation Classes used to build iNet Developer's Web Object Model elevate it from a mere site-creation and management tool to an extensible application...

...content creators from having to cope with ever-changing standards and technologies, such as HTML, Dynamic HTML, scripting languages, and differing browser feature sets.
You can create data-driven sites that...

...versions of Netscape.
If you are creating integrated intranet Web applications rather than simply stitching Web pages together to create a static site, iNet Developer 4.0 provides a good platform. It lets users create...

...GOOD
iNet Developer 4.0
This tool offers a Web application-development package for creating dynamic intranet sites that lets authors concentrate on content and business logic.

Pros: Suitability for nontechnical...

19981012

? t s10/7/5

10/7/5 (Item 2 from file: 148)
Gale Group Trade & Industry DB
10534751   Supplier Number: 21215856 (THIS IS THE FULL TEXT)
Pictorius: team tool.(Pictorius' iNet Developer 4.0) (Software Review)(Evaluation)

Shankar, Gess
InfoWorld , v20 , n41 , p47(1)
Oct 12 , 1998

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components. Your team members can then develop powerful applications
collaboratively and rapidly by doing what they know best.
     iNet Developer 4.0 expands on the previous version's team-based
development tools with new tools for content creators as well as
programmers. (See our review of iNet Developer 3.0,
www.infoworld.com/printlinks.)
     Browser-based editing
     As in previous versions, the Webmaster and various content creators
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objects and agents. iNet Developer implements a Web Object
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     iNet Developer 4.0 adds a neat feature for casual contributors:
browser-based content creation. A manager, for example, may want to update

some text on a particular page periodically. Instead of delegating this task or changing the page in iNet Developer and updating the site, he or she can make the change to the live site directly by using just a Web browser.

Accomplishing this is easy. In iNet Developer's Site Editor, the page author simply sets the page as "browser-editable." He or she then edits page elements normally, but marks specific elements as browser-editable.

You can even create template pages, which permit users to create new pages on the fly and add content with any Web browser. The security infrastructure ensures that only users with passwords and write permission can modify or add pages.

The improved import facility now allows you to import existing static sites. Simply by providing the path to a home page, I could import an entire site. iNet Developer parses the HTML to pull in the various hyperlinked pages and images. This makes managing the site easier, as the pages are added to the iNet site object database.

Because iNet Developer's Page Editor only knows about iNet objects, you cannot preview the imported pages, nor can you edit them within iNet Developer. However, you can configure any external HTML editor to modify these pages.

Programming framework

Although iNet Developer makes creating dynamic pages as easy as word processing, the underlying architecture provides a sound framework for programmers.

iNet Developer comes with several precompiled components (called Agents), and you can also extend your application capabilities using the

Prograph Foundation Classes (PFCs). With the PFCs, Pictorius has remodeled its general-purpose visual programming language, Prograph, into an object-oriented Web application-development platform.

iNet Developer's Application Server is itself a compiled collection of PFC code. Since Pictorius provides the PFC source code for this server, you can extend it by modifying or creating new Agents and actions (triggered by users clicking on buttons) and by implementing custom business logic.

I have to admit that Prograph takes some getting used to, as it is vastly different from most popular development languages and environments. Instead of using text to write program code, you use icons representing program operations and elements and visually wire them together to develop the program. However, reading the documentation and browsing the source code got me oriented quickly.

Another plus for programmers is the ability to create Component Object Model (COM) methods in Visual Basic, C++, or Java. Once registered, these are available to your page authors as plug-ins within the Site and Page Editors.

Extensible platform

The Prograph Foundation Classes used to build iNet Developer's Web Object Model elevate it from a mere site-creation and management tool to an extensible application-development platform. This also effectively insulates your content creators from having to cope with ever-changing standards and technologies, such as HTML, Dynamic HTML, scripting languages, and differing browser feature sets.

You can create data-driven sites that use the "gee-whiz" features of specific browsers such as Microsoft Internet Explorer or Netscape Communicator while leaving browser detection and appropriate HTML or script generation to iNet Developer or to custom components you create.

The iNet browser rendering engine works, for the most part. However, in my tests I found that pages always looked perfect in Microsoft Internet Explorer, but somewhat less so in various versions of Netscape browsers. For example, buttons perfectly aligned in Explorer would appear scattered in some versions of Netscape.

If you are creating integrated intranet Web applications rather than simply stitching Web pages together to create a static site, iNet Developer 4.0 provides a good platform. It lets users create applications without programmer involvement, while programmers can add to your intranet's functionality at the server and application levels.

Gess Shankar (gess@earthchannel.com) is an author, developer, trainer, and Webmaster with more than 30 years of IT experience, including 12 years as a vice president of research and development.

THE BOTTOM LINE: VERY GOOD

iNet Developer 4.0

This tool offers a Web application-development package for creating dynamic intranet sites that lets authors concentrate on content and business logic.

Pros: Suitability for nontechnical authors and for programmers; browser-based page editing; centralized site management; secure team development; component-based database publishing; Prograph Foundation Classes for customization.

Cons: Occasional script errors; alignment problems in forms rendered in Netscape; limited editing of imported HTML; Prograph proficiency required.

Pictorius Inc., Halifax, Nova Scotia; (902) 492-2880, (800)-927-4847; fax: (902) 492-3409; info@pictorius.com; www.pictorius.com.

Price: $1,495 per developer; $7,495 per CPU for the application server.

Platforms: Windows NT, Windows 95.

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? d s

Set   Items Description

S1 69787003 S PD<20000112

S2   406098 S (CREAT??? OR PUBLISH???)(5N)(WEBPAGE OR WEB-PAGE OR WEBPAGES OR WEB-PAGES OR WEBSITE OR WEBSITES OR WEB-SITE OR WEB-SITES OR (WEB(W)(SITE OR SITES OR PAGE OR PAGES)))

S3   95743 S S1 AND S2

S4   7288   S S3 AND (TEMPLATE OR TEMPLATES)

S5   1815   S S4 AND (OBJECT OR OBJECTS)

S6   130   S S5 AND (CONTAINER OR CONTAINERS)

S7   85   S S6 AND (DYNAMIC OR DYNAMICALLY)

S8   65   RD (unique items)

S9   21   S S7 AND ((MINIMAL OR LITTLE OR NON-TECHNICAL OR NONTECHNICAL)(3N)(SKILL OR SKILLS OR KNOWLEDGE OR KNOWLEGE OR TECHNICAL))

S10   19   RD (unique items)

? s s7 and (pictorious or inet(w)developer)

       85   S7

        7   PICTORIOUS

    15530   INET

  2667087   DEVELOPER

      176   INET(W)DEVELOPER

S11   3   S S7 AND (PICTORIOUS OR INET(W)DEVELOPER)

? t s11/free/all

>>>W: "FREE" is not a valid format name in file(s): 347-349

11/8/1 (Item 1 from file: 15)
ABI/Inform(R)
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01729815   03-80805
           USE FORMAT 7 OR 9 FOR FULL TEXT
Pictorius: Team tool
  Word Count: 789 Length: 2 Pages
Oct 12, 1998
Company Names:
Pictorius Inc
Geographic Names: US

Descriptors: Software reviews; Software upgrading; Web sites; Object oriented programming
Classification Codes: 9190 (CN=United States); 5240 (CN=Software & systems); 9120 (CN=Product specific)

11/8/2 (Item 1 from file: 16)
Gale Group PROMT(R)
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05838693   Supplier Number: 50350371 (USE FORMAT 7 FOR FULLTEXT)

Pictorius: team tool
Oct 12 , 1998
Word Count: 939
Publisher Name: InfoWorld Publishing Company
Company Names: *Pictorius Inc.
Event Names: *336 (Product introduction)
Geographic Names: *1USA (United States)
Product Names: *7372513 (Application Development Software)
Industry Names: BUSN (Any type of business); CMPT (Computers and Office Automation)
NAICS Codes: 51121 (Software Publishers)
Special Features: COMPANY

11/8/3 (Item 1 from file: 148)
Gale Group Trade & Industry DB
10534751   Supplier Number: 21215856 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Pictorius: team tool.(Pictorius' iNet Developer 4.0) (Software Review)(Evaluation)

Oct 12 , 1998
Word Count: 999   Line Count: 00087
Company Names: Pictorius Inc.--Products
Industry Codes/Names: BUSN Any type of business; CMPT Computers and Office Automation
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Product/Industry Names: 7372 Prepackaged software
Trade Names: Pictorius iNet Developer 4.0 (Internet/Web server software)-- Evaluation
File Segment: CD File 275

? t s11/7/3

11/7/3 (Item 1 from file: 148)
Gale Group Trade & Industry DB
10534751   Supplier Number: 21215856 (THIS IS THE FULL TEXT)
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